

**National Park Service  
U.S. Department of the Interior**

**Everglades National Park  
Florida**



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# **Pine Island Wastewater System Improvements Finding of No Significant Impact August 2003**



**FINDING OF NO SIGNIFICANT IMPACT**  
**Pine Island Wastewater System Improvements**  
**Everglades National Park, Florida**

The Pine Island developed area is located at the eastern entrance to Everglades National Park, just outside Homestead, Florida. The project area is located on a relatively high geological feature known as the Atlantic Coastal Ridge that terminates in Everglades National Park. Pine Island hosts a stand of Dade County slash pine, a critically endangered habitat. Slash pine is a dominant tree, but the pinelands are habitat for many of the rarest plant species in Florida. More than 98 percent of the Dade County pine forests outside Everglades National Park have been lost.

Pine Island is home to park headquarters, the Ernest F. Coe Visitor Center, 28 park housing units, and park maintenance facilities. Currently, wastewater treatment at Pine Island is accomplished by individual septic tanks and drainfields. Overall, wastewater treatment uses 32 septic systems, installed approximately 40 years ago when this portion of the park was initially developed.

The septic systems serving the Pine Island developed area are aging and in poor condition. They have inadequate capacity to adequately handle the 25,000 gallons of wastewater generated daily. In addition, the current state requirement that drainfields be a minimum of 24 inches above high groundwater elevation is not met. Although the installations are exempt from Florida regulations (“grandfathered” in as a previous existing development), the park is seeking a long-term solution for Pine Island wastewater treatment needs that will comply with current state and federal requirements regarding wastewater treatment and protect the surrounding environment.

To address Pine Island’s wastewater management needs, the park will install a new centralized wastewater treatment facility and wastewater collection/transmission system in the Pine Island developed area. The new facility will use best available technology to meet current and future demand and comply with requirements of regional Everglades restoration efforts, including the Everglades Forever Act and Outstanding Florida Waters regulations. These regulations include effluent limits of 10 parts per million for total nitrogen and 1 part per million total phosphorus.

Unlike the no action alternative, the preferred alternative will ensure an effective, efficient, and reliable wastewater treatment system that meets all federal, state, and local operational and effluent standards in an environmentally sound manner. The preferred alternative will result in minor to moderate, long-term beneficial impacts to several resources, including public health and safety, hydrology and water quality, wetlands, wildlife and habitats, and vegetation.

**PREFERRED ALTERNATIVE**

The park will install a new wastewater collection system to serve the Pine Island developed area. The system will include a package treatment plant, effluent discharge transmission lines, and two new raised infiltration beds (percolation ponds). The footprint of this new system will cover an area of approximately 3 acres. New collection lines will connect all facilities within the project area, including each individual housing unit, the park entrance station, and the headquarters/visitor center complex to one new treatment plant. This action will require approximately 2,000 feet of new collection lines and 7,500 feet of transmission lines.

Trenching will be done in previously disturbed road shoulders and driveways, where possible. The trenching for the new collection lines will require a 2-foot wide trench at a depth of 3 feet, causing some new soil disturbance where the fill that comprises most of the Pine Island area is less than 3 feet in depth. Installation of the wastewater conveyance will require about 1 acre of surface disturbance. Because of the flat topography in the area, the collection/transmission lines will be pressurized by installation of pump stations and force mains. This will ensure proper movement of raw wastewater from the sources to the new treatment facility.

The new package wastewater treatment plant, designed to treat on average 30,000 gallons per day, will occupy approximately 2,200 square feet (0.05 acres) and be located on a previously disturbed site adjacent to and just south of the existing Recycle Building. The placement of the wastewater treatment plant will avoid wetlands and pinelands. The existing access road to this new facility is gated, providing NPS administrative access only.

The NPS has selected a membrane biological reactor (MBR) treatment system, which has been proven to meet discharge requirements. The wastewater plant will be designed to treat phosphorus in plant effluent to 100 parts per billion, or 0.10 parts per million. However, if this treatment standard is found to be insufficient to protect nearby Outstanding Florida Waters, then the NPS will provide additional treatment to achieve 10 parts per billion total phosphorus at the point of effluent discharge. Sludge will be pumped out periodically and disposed of in a licensed wastewater treatment plant in Miami-Dade County.

A new effluent discharge line (approximately 3,960 feet in length) from the new treatment plant near the Recycle Building will be trenched along the abandoned 1,000 foot airstrip access road (previously disturbed area) and discharged into two new raised infiltration beds. Following installation of the discharge line, the 1,000 foot access road from the Recycle Building to the abandoned airstrip will be retained at its present width as a gravel road, but rehabilitated (grading and additional gravel) to provide reliable park monitoring/maintenance access.

Two, 1-acre raised infiltration beds will be located on the southeasterly portion of the abandoned airstrip, avoiding direct impact to wetlands and pinelands. The infiltration beds will be limestone placed on top of existing grade. This will require removal of up to 4 inches of disturbed surface material in preparation for the new fill. There will be an approximately 2 foot deep trench for transmission pipes excavated to each of the infiltration beds. Public entry to the airstrip and raised infiltration beds will be blocked by a gate on the airstrip access road. Signs will also be posted to prohibit visitor (hiker) use of the area.

### **Mitigation Measures**

Best management practices and mitigation measures will be used to prevent or minimize adverse effects associated with the action. These practices and measures will be incorporated into the project construction documents to reduce levels of adverse effects. A list of the mitigation measures to be adopted and undertaken before, during, and after project implementation is included in Appendix A of this document.

### **ALTERNATIVES ANALYZED IN THE ENVIRONMENTAL ASSESSMENT**

The preferred alternative and the choice of taking no action were fully analyzed in the Environmental Assessment. The rationale for eliminating the no action alternative is outlined below.

**No Action/Continue Current Management.** Under the no action alternative, there will be continued utilization of the 32 existing septic tanks and drainfields. These systems serve park headquarters, the Ernest F. Coe Visitor Center, park entrance station (employee use only), park housing, and park maintenance. These systems serve approximately 70 staff and their families living at Pine Island during the peak visitor season; approximately 55 staff and families during the off season, and approximately 186,000 visitors per year that use the restrooms at the Ernest F. Coe Visitor Center.

The park headquarters septic system, the largest of the 32, includes a 3,000 gallon concrete septic tank with sixteen 100-foot long drainfield lines. Because the site is not mounded, the drainfield is often partially submerged in groundwater. A small septic tank/drainfield system supports the main park entrance station to serve employees. The system includes a 750-gallon concrete tank, along with a 300 square-foot drainfield. Most of the smaller systems at Pine Island are also periodically partially submerged within the water table.

Each of the 28 park staff housing units and 4 recreational vehicle camp sites have individual septic tank/drainfield systems. Each unit includes a 750-gallon (average size) concrete septic tank with a 900 square

foot (average size) drainfield. Many of the drainfields are mounded, but are still not elevated enough to meet the Florida state standards of a minimum of 24 inches above the high water ground elevation.

Wastewater flows to the septic systems have never been metered; therefore, estimates of sewage flows are made on the amount of water used and/or the number of people being served. Since no irrigation or other significant consumptive water use is prevalent at either site, the volume of potable water used should essentially be equal to the volume of sewage produced. Therefore, the water treatment plant flows can be used to determine the capacity for the new wastewater treatment system. Wastewater flows will be 13,700 gallons per day for Pine Island and 1,630 gallons per day for headquarters.

The wastewater currently produced at Pine Island and headquarters has never been tested, but can be assumed to be typical domestic sewage; no unusual discharges into the collection system are anticipated.

### **Alternatives Dismissed**

The National Park Service considered and rejected several alternatives before development of the preferred alternative. Brief descriptions of these preliminary alternatives, and their reasons for dismissal, are outlined below.

**Individual mound systems** were considered but rejected because construction of multiple separate septic systems would require imported fill material and would not provide for adequate removal of nutrients from wastewater.

**Separate wastewater treatment plants for Pine Island and Headquarters/Visitor Center** would have installed separate package treatment plants at the two sites, including separate effluent disposal units. This alternative was rejected because of the lack of space near the headquarters/visitor center site when considering placement of both a new package wastewater treatment plant and a new raised infiltration bed(s).

**Wastewater treatment plant adjacent to the borrow pit with conversion of the borrow pit pond to a raised infiltration bed** was rejected because of the potential major adverse effect it would have on the endangered Florida panther. This alternative would require that 86,400 cubic yards of fill be taken from the Hole-in-the Donut location to fill in the borrow pit pond for conversion to a raised infiltration bed. Approximately, 2,400 truck loads of fill would be required to fill the borrow pit. This volume of truck traffic along this 8 mile section of park road would greatly increase the chances of panther mortality. In addition, hauling operations for the fill would damage park roads, unless extensive protective measures were taken to mitigate the action.

**Pumping untreated wastewater to a Miami-Dade County for treatment** was rejected because of the prohibitive cost of installing many miles of sewer main piping. Trenching and the potential for sewage spills would produce adverse impacts to sensitive wetlands. The alternative would also have the potential to encourage commercial and residential development on agriculture lands adjacent to the park. In addition, this alternative would require extensive interaction and negotiation with Miami-Dade County, and the National Park Service would have to surrender control over the final effluent water quality and reclamation method.

**Deep well injection for the Pine Island wastewater** had an unknown probability of success. Deep well injection requires locating a confinement layer that seals off wastewater from groundwater aquifers. There is always the possibility that a confinement layer might not be located, which would also result in a total loss of expenditures. The permitting for deep well injection is also complicated and controversial due to the potential for long-term aquifer contamination.

**Reuse of Wastewater Effluent** was determined not to be viable because each potential reuse has its own set of environmental impacts, such as facility construction and the trenching of new distribution piping, which would need to be further analyzed. In addition, the costs of converting to a reuse system are quite substantial.

A “living” wastewater treatment system was discussed but dismissed. The primary reason for dismissal was that a living treatment facility or a constructed wetland system type of process would not be able to reduce the level of pollutants (particularly phosphorus) down to acceptable levels as required for Outstanding Florida Waters and the Everglades Forever Act. In addition, a reconstructed wetlands treatment would require a considerable amount of space due to the lower rates at which they degrade wastes when compared to a package type of treatment facility and raised infiltration beds.

## **ENVIRONMENTALLY PREFERRED ALTERNATIVE**

As stated in Section 2.7.D of Director’s Order #12 and Handbook, the environmentally preferred alternative is the alternative that will promote the national environmental policy expressed in the National Environmental Policy Act (NEPA) (Sec. 101 (b)). This includes alternatives that:

1. Fulfill the responsibilities of each generation as trustee of the environment for succeeding generations.
2. Ensure for all Americans safe, healthful, productive, and aesthetically and culturally pleasing surroundings.
3. Attain the widest range of beneficial uses of the environment without degradation, risk of health or safety, or other undesirable and unintended consequences.
4. Preserve important historic, cultural, and natural aspects of our national heritage and maintain, wherever possible, an environment that supports diversity and variety of individual choice.
5. Achieve a balance between population and resource use that will permit high standards of living and a wide sharing of life’s amenities.
6. Enhance the quality of renewable resources and approach the maximum attainable recycling of depletable resources.

The National Park Service has identified the preferred alternative, as the environmentally preferred alternative. This alternative will attain the widest range of beneficial uses of the environment, biological resource protection, visitor safety and enjoyment, and cultural resource protection, without degradation of resources. Specifically, the preferred alternative, meets the criteria for the environmentally preferred alternative by ensuring:

- a higher level of health and safety for visitors and park employees as compared to the no action alternative by providing a dependable wastewater system that will meet all federal, state, and local health standards (Criterion 2 & 3);
- the reduction of nitrogen and phosphorus, minimizing adverse effects on groundwater, surface waters, and surrounding wetlands that are critical to the functioning of this sensitive ecosystem (Criterion 4);
- that the effluent discharge has a minimum adverse effect on park resources that are critical to the diversity of plant and animal life associated with this internationally significant resource (Criterion 4); and
- that the National Park Service is better able to achieve its long range mission goal of providing a balance between human use and benefits while at the same time protecting the park’s groundwater, surface waters, and surrounding wetlands that are vital to the park’s long term survival (Criterion 1 & 5).

## **THE PREFERRED ALTERNATIVE AND SIGNIFICANCE CRITERIA**

As defined in 40 CFR §1508.27, significance is determined by examining the following criteria:

***Impacts that may be both beneficial and adverse. A significant effect may exist even if the Federal agency believes that on balance the effect will be beneficial.***

Over the short-term, negligible to minor adverse effects will be generated by construction activities needed to install the wastewater treatment plant and upgrade the collection system. Wildlife will be disturbed by activities and noise during construction, vegetation will be removed and rehabilitation efforts undertaken, and increased sediment could, temporarily, affect local surface water quality.

Over the long-term, the lower nutrient load delivered to the wetland environment surrounding the Pine Island developed area will reduce potential effects to local groundwater and nearby vegetation. This will produce long-term, minor benefits.

***The degree to which the proposed action affects public health or safety***

The reduced risk of human contact with water-borne pathogens provided under the preferred alternative will produce long-term, minor, beneficial effects to public health and safety. Conversely, negligible long-term, adverse impacts will arise from the increased risk to park employees and staff tasked with wastewater treatment plant operation, as they will be more likely to come in contact with water-borne pathogens and hazardous chemicals used in the wastewater treatment process.

During construction of the infiltration beds on the former airstrip, increased accident potential could result from fill delivery. This will result in a short-term, minor, adverse impact to public health and safety.

***Unique characteristics of the geographic area such as proximity to historic or cultural resources, park lands, prime farmlands, wetlands, wild and scenic rivers, or ecologically critical areas***

The Pine Island developed area is located within the critically endangered Dade County slash pine habitat. It is an island of higher elevation surrounded by freshwater wetlands. Florida Bay is approximately 10 miles to the south. The proposed project area is located between the Corps of Engineers C-111 canal on the east and Taylor Slough, to the west.

The project area is a highly disturbed narrow strip of land, immediately adjacent to Dade County slash pine habitat. Facilities and roads have been placed on large quantities of fill. The site now supports artificially maintained vegetation (lawns). Adjacent to the developed area, pine rockland dominates, with marl prairies in lower elevations. The area is also significantly impacted by the presence of invasive exotic vegetation.

The new wastewater treatment plant will treat nutrients and reduce the amounts of nitrogen and phosphorous introduced into the surrounding area. This will result in a negligible beneficial impact on Dade County slash pines and their habitat.

***The degree to which the effects on the quality of the human environment is likely to be highly controversial***

Implementation of the preferred alternative will not be controversial. There were no controversial impacts identified during the analysis done for the EA, and no controversial issues were raised during the public review of the environmental assessment.

***Degree to which the possible effects on the quality of the human environment are highly uncertain or involve unique or unknown risks***

The risks to the quality of the human environment associated with the preferred alternative will be negligible. There were no highly uncertain, unique, or unknown risks associated with implementation of the preferred alternative.

***Degree to which the action may establish a precedent for future actions with significant effects or represents a decision in principle about a future consideration***

The preferred alternative neither establishes a National Park Service precedent for future actions with significant effects nor will it represent a decision in principle about a future consideration.

***Whether the action is related to other actions with individually insignificant but cumulatively significant impacts***

No significant cumulative impacts were identified during the environmental analysis.

***Degree to which the action may adversely affect districts, sites, highways, structures, or objects listed on National Register of Historic Places or may cause loss or destruction of significant scientific, cultural, or historical resources***

Archeological testing was conducted on May 29, 2003 by the NPS Southeast Archeological Center within the area of potential effects for this undertaking. Approximately 25 shovel tests were performed and no cultural resources were found. Although the project area includes the original route of the Old Ingraham Highway, a structure eligible for the *National Register of Historic Places*, no evidence of it was found. The portion of the highway that crosses the project area was removed in the 1960s and no associated subsurface features were identified in archeological testing. On July 8, 2003 the Florida State Historic Preservation Officer concurred with the park's determination that the project will have no effect on properties eligible for listing in the *National Register of Historic Places*.

Because the project site is not in a high probability area, it is unlikely that any cultural resources will be encountered or impacted. However, there is still the potential that construction in previously undisturbed areas (beneath existing fill) may affect previously unknown archaeological sites. Therefore, this alternative may potentially make a minor contribution to long-term adverse cumulative effects on cultural resources at Everglades National Park. In the unlikely event that cultural resources are discovered during construction, work will be suspended and the procedures stipulated in 36 CFR Part 800 will be followed.

***Degree to which the action may adversely affect an endangered or threatened species or its critical habitat***

The effects to endangered, threatened, and protected species under the preferred alternative range from "no effect" to "may affect, not likely to adversely affect." Additionally, there will be no adverse effects to the designated critical habitats of any of these species. The limited amount of surface disturbance, and the fact that excavation is restricted to previously disturbed and developed areas, also reduces the potential for effects to threatened and endangered species.

***Whether the action threatens a violation of Federal, state, or local environmental protection law***

The preferred alternative will not violate any federal, state, or local environmental protection laws.

***Impairment***

In addition to reviewing the list of significance criteria, the National Park Service has determined that implementation of the preferred alternative will not constitute an impairment to Everglades National Park resources and values. An impact will be more likely to constitute an impairment to the extent that it affects a resource or value whose conservation is:

- Necessary to fulfill specific park purposes identified in the establishing legislation or proclamation of Everglades National Park;
- Key to the natural or cultural integrity of Everglades National Park or to opportunities for enjoyment of the park; or

- Identified as a goal in the park's general management plan or other relevant NPS planning documents.

This conclusion is based on a thorough analysis of the environmental impacts described in the project's Environmental Assessment, public comments, relevant scientific studies, and the professional judgment of the decision-maker guided by the direction in National Park Service Management Policies. Although implementation of the project will cause short-term, localized adverse effects, in all cases these result from actions taken to preserve vital park resources. Overall, implementation of the preferred alternative will result in benefits to natural resources and the human environment and will increase opportunities for their long-term enjoyment. Implementation of the Pine Island Wastewater System Improvement project will not result in impairment of Everglades National Park resources and values and will not violate the NPS Organic Act.

## **PUBLIC INVOLVEMENT AND CONSULTATION**

Scoping is the effort to involve agencies and the general public in determining the scope of issues to be addressed in the environmental document. Among other tasks, scoping determines important issues and eliminates issues not important; allocates assignments among the interdisciplinary team members and other participating agencies; identifies related projects and associated documents; identifies other permits, surveys, consultations required by other agencies; and creates a schedule which allows adequate time to prepare and distribute the environmental document for public review and comment before a final decision is made. Scoping includes any interested agency or any agency with jurisdiction by law or expertise (including the Advisory Council on Historic Preservation, the State Historic Preservation Officer, and Indian tribes) to obtain early input.

During scoping for this environmental assessment, the park contacted the Seminole Tribe of Florida, the Seminole Nation of Oklahoma, the Miccosukee Tribe of Indians of Florida, and a group of traditional/independent Miccosukees via letter on January 27, 2003. One response to the scoping letter was received from the Seminole Nation of Oklahoma. The Tribe expressed no interest in commenting on the project.

In accordance with Section 106 of the National Historic Preservation Act, the park contacted the National Advisory Council on Historic Preservation in Washington, D.C. and the Florida State Historic Preservation Officer (SHPO) during development of this environmental assessment. The SHPO also received a copy of the environmental assessment and the results of archeological testing in the project area. On July 8, 2003, the SHPO concurred with the park's finding of *No Effect* on properties eligible for listing in the *National Register of Historic Places*.

The U.S. Fish and Wildlife Service was contacted by letter on January 28, 2003 regarding the threatened and endangered species with the potential to occur in the project area. The USFWS also received a copy of the environmental assessment in June 2003. The Service replied on July 24, 2003, in concurrence with the park's findings of "no affect" and "may affect, not likely to adversely affect" for the listed species addressed in the environmental assessment.

During scoping for this environmental assessment, the park provided the Florida State Clearinghouse with the scoping notice for processing through appropriate state agencies. The agency was also provided with copies of the EA for distribution.

The *Pine Island Wastewater System Improvements Environmental Assessment* was on public review from June 13, 2003 through July 28, 2003. A total of nine comments were received during the 45-day public review period on draft environmental assessments. Eight of the comments received were from consultative and regulatory agencies and one from an individual. None of the comments opposed the proposed action. Substantive comments are addressed in the attached Errata sheets.



## CONCLUSION

The preferred alternative does not constitute an action that normally requires the preparation of an environmental impact statement (EIS), and the preferred alternative will not have a significant effect on the human environment. Negative environmental impacts that could occur are negligible to minor. There are no unmitigated, adverse impacts on public health, public safety, threatened or endangered species, sites or districts listed in or eligible for listing in the National Register of Historic Places, or other unique characteristics of the region. In addition, no highly uncertain or controversial impacts, unique or unknown risks, significant cumulative effects, or elements of precedence have been identified and implementing the preferred alternative will not violate any federal, state, or local environmental protection law. There will be no impairment of park resources or values resulting from implementation of the preferred alternative.

Based on the foregoing, the NPS has determined the preferred alternative will not have a significant effect on the human environment, that an EIS is not required for this project, and that an EIS will not be prepared.

Recommended: \_\_\_\_\_

John C. Benjamin Acting Superintendent Everglades National Park	_____
	Date

Approved: \_\_\_\_\_

Patricia A. Hooks Acting Southeast Regional Director	_____
	Date

## APPENDIX A

### Pine Island Wastewater System Improvements

#### MITIGATION MEASURES AND BEST MANAGEMENT PRACTICES

Potential Adverse Effect	Mitigation Measure or Best Management Practice	Responsible Party	Implementation Period
Direct effects from construction activities	Fencing of certain construction areas to confine potentially adverse activities to the minimum area required for construction. All protection measures will be clearly stated in the construction specifications, and workers will be instructed to avoid conducting activities beyond the fenced construction zone.	Contractor and NPS Project Manager	Prior to and during construction
Erosion resulting from construction-related surface disturbance	The contractor will be required to implement stormwater pollution prevention plan measures prior, during and following ground disturbing activities. Standard erosion control measures such as sand bags will be used to minimize soil erosion. Erosion barriers will be inspected and maintained regularly to ensure effectiveness. The primary measure used to control stormwater runoff will be installation of temporary silt fencing. Silt fences are made of synthetic fabric and are placed in drainage contours to trap sediments generated during construction.	Contractor and NPS Project Manager	Prior to and during construction and site rehabilitation
Construction would affect areas previously undisturbed	Construction activities will take advantage, where possible, of sites where previous disturbance has already had adverse effects.	Contractor and NPS Project Manager	Prior to and during construction
Contamination of soil by petrochemicals from construction equipment and maintenance of wastewater treatment system	Areas used for equipment maintenance and refueling will be minimized and surface runoff in these areas will be controlled. Equipment will be checked frequently to minimize leaks and potential contamination. All chemicals used in the wastewater treatment process will be transported, stored, and used following federal, state, and local regulations and standards.	Contractor and NPS Project Manager	Prior to and during construction

## MITIGATION MEASURES AND BEST MANAGEMENT PRACTICES

Potential Adverse Effect	Mitigation Measure or Best Management Practice	Responsible Party	Implementation Period
Direct effects from construction and operation of new wastewater system on threatened and endangered species, wildlife, and habitat	All construction personnel will be advised of the potential presence of the Florida panther to avoid disturbance or injury to this federally endangered specie. The park will use its best professional judgment in applying standard protection measures for the federally listed, threatened Eastern indigo snake (see Appendix D of the environmental assessment).	Contractor and NPS Project Manager	Prior to and during construction
Wildlife disturbance resulting from construction activities, including noise	To reduce potential impacts on wildlife, construction activities occurring near sensitive habitats will be timed to avoid periods of breeding, nesting and rearing of young. Construction will occur only during daylight hours to reduce effects on nocturnal foraging or rest.	Contractor and NPS Project Manager	Prior to and during construction
Direct effects from construction and operation of new wastewater system on the visitor experience and park staff	To lessen adverse effects on the visitor experience, construction information will be posted in strategic locations and made available on the park's website. Construction will minimize disruption of visitor access and use of the Pine Island developed area by working methodically from one end of the project area to the other. Where possible, all construction activities will be timed to avoid high visitor use periods. In the design stage, every effort will be made to buffer the noise generated by the wastewater plant blower and generator to minimize the effect on the park staff housing area.	NPS Project Manager and Park Rangers	Prior to and during construction

## MITIGATION MEASURES AND BEST MANAGEMENT PRACTICES

Potential Adverse Effect	Mitigation Measure or Best Management Practice	Responsible Party	Implementation Period
Protection of cultural resources	If any cultural resources are encountered during the course of the project, adequate mitigation of project impacts (in consultation with appropriate agencies) or adjustment of the project design will take place to avoid or limit the adverse effects on prehistoric and historic archaeological resources. Avoid known historic structures and archaeological sites, whenever possible. If avoidance is not possible, mitigate impacts through salvage and documentation, as appropriate. Educate personnel about the nature of the cultural resources at the project site and the need for protection. Monitor construction activities and include stop-work provisions in construction documents should archaeological or paleontological resources be uncovered.	Contractor, NPS Project Manager and NPS Cultural Resource Specialist	Prior to and during construction
Discovery of unknown archeological resources or human remains	If previously undiscovered archeological resources are unearthed, work will be stopped in the area of any discovery and the park will consult with the National Park Service Southeast Archeological Center, the State Historic Preservation Officer, the Advisory Council on Historic Preservation and Native American Tribes as required by 36 CFR Part 800.	NPS Project Manager and/or park Cultural Resource Specialist	During construction
Visitor experience	Prepare bulletins to educate visitors on the purpose of projects.	NPS Project Manager and Park Rangers	Prior to construction
Public health and safety	Enforce “authorized vehicles only” zone currently associated with the park housing/maintenance area. Provide traffic flow control, signage and flagging to protect visitor and staff safety during construction activities.	Contractor and NPS Project Manager	During construction
Disturbance of state-listed plant species	In construction areas near state-listed plant species; identify, flag and avoid these species to eliminate potential adverse effects.	NPS Project Manager and/or Resource Specialist	Prior to construction

## MITIGATION MEASURES AND BEST MANAGEMENT PRACTICES

Potential Adverse Effect	Mitigation Measure or Best Management Practice	Responsible Party	Implementation Period
Floodplains and wetland impacts	<p>Locating the two new percolation ponds as far from surface waters as possible, and the installation of monitoring wells at strategic locations will reduce potential impacts to Outstanding Florida Waters.</p> <p>The preferred alternative will reduce the overall developed footprint in the 100-year floodplain. Abandoning the existing septic tanks and drainfields will reduce direct disturbance of the floodplain by removing the need for long-term maintenance and stop the leaching of insufficiently treated effluent into groundwater. However, because the wastewater treatment plant and discharge ponds are located in a high hazard area, the risk to property can be reduced through mitigation but cannot be eliminated.</p> <p>The new pumping stations, force mains, and sewer mains will be located below ground and properly embedded to minimize damage from surface erosion, debris and flooding.</p> <p>To improve the protection of park property a wastewater treatment plant hurricane hazard plan will be developed. This plan will address pre and post hurricane preparedness measures in accordance with the <i>Hurricane Preparedness for Domestic Wastewater Treatment Plants</i> guidelines established by the Florida Department of Environmental Protection.</p> <p>The National Park Service will continue to operate these facilities using the Everglades National Park Hurricane Plan, an operational hazard implementation plan that lowers the threat to life and property. This plan is coordinated with the Miami-Dade, Collier and Monroe County Departments of Emergency Management. The plan is reviewed and updated annually to ensure maximum human safety.</p>	Design engineer and NPS Project Manager	Prior to construction

**ERRATA SHEETS**  
**Pine Island Wastewater System Improvements**  
**Environmental Assessment**

The *Pine Island Wastewater System Improvements Environmental Assessment* was on public review from June 13, 2003 through July 28, 2003. A total of nine comments were received during the 45-day public review period on draft environmental assessments. Substantive comments were analyzed consistent with the guidance provided in the National Park Service's (NPS) *Director's Order 12*, the NPS guideline for environmental compliance. Comments are considered substantive when they: a) question, with reasonable basis, the accuracy of information in the draft environmental assessment, b) question, with reasonable basis, the adequacy of the environmental analysis, c) present reasonable alternatives other than those presented in the EA, or d) cause changes or revisions in the proposal. Comments that state a preference for one alternative (or component of an alternative), state opinions, or are outside the scope of the project, are not considered substantive.

Eight of the comments received were from consultative and regulatory agencies and one from an individual. None of the comments opposed the proposed action. NPS editorial review resulted in changes to text in certain portions of the EA and are listed in the Changes in the Environmental Assessment Text section below. The remaining substantive comments are addressed in the Response to Comments section of these errata sheets. The combination of the EA and the errata sheets form the complete and final record on which the Finding of No Significant Impact is based.

**CHANGES IN THE ENVIRONMENTAL ASSESSMENT TEXT**

**1. SUMMARY: Page 'i', 5<sup>th</sup> paragraph, 3<sup>rd</sup> sentence:**

Replace the third sentence in the fifth paragraph with the following sentence:

"These regulations include effluent limits of 10 parts per million for total nitrogen and 1 part per million total phosphorus."

**2. ALTERNATIVES: Page 19, Alternative A: No Action/Continue Current Management:**

In the second sentence of the fifth paragraph, replace the phrase "780 gallon" with "750 gallon."

**3. ALTERNATIVES: Page 20, Alternative A: No Action/Continue Current Management:**

Replace the last sentence in the last paragraph with the following sentence:

"The existing car wash at Pine Island, which is a closed system using recycled water, would remain unchanged."

**4. ALTERNATIVES: Page 21, Alternative B: The Preferred Alternative:**

Insert the following text as the last paragraph in this section:

"Under the preferred alternative, the car wash at Pine Island would be connected to the system. It is estimated that an average of only 2 or 3 vehicles per day would be washed there, which would not be significant."

**5. ALTERNATIVES: Page 21, Alternative B: The Preferred Alternative:**

In the first (partial) paragraph on this page, replace the second complete sentence with the following sentence:

“The trenching for the new collection lines would require a 2 foot wide trench at a depth of 3 feet, causing some new soil disturbance where the fill that comprises most of the Pine Island area is less than 3 feet in depth.”

**6. ALTERNATIVES: Page 21, Alternative B: The Preferred Alternative:**

In the first sentence of the third paragraph of this page, replace the phrase “up to 30,000 gallons per day” with the phrase “an average of 30,000 gallons per day.”

**7. ALTERNATIVES: Page 21, Alternative B: The Preferred Alternative:**

Replace the second paragraph on this page with the following paragraph:

“The NPS has selected a membrane biological (MBR) treatment system, which has been proven to meet the discharge requirements. The wastewater plant would be designed to treat phosphorus in plant effluent to 0.10 ppm, or 100 parts per billion. However, if this treatment standard is found to be insufficient to protect nearby Outstanding Florida Waters, then the NPS would provide additional treatment to achieve 10 parts per billion total phosphorus at the point of effluent discharge. The park would install monitoring wells at strategic locations to ensure the protection of Outstanding Florida Waters. Sludge would be pumped out periodically and disposed of in a licensed wastewater treatment plant in Miami-Dade County.”

**8. ALTERNATIVES: Page 21, Alternative B: The Preferred Alternative:**

In the last sentence of the third paragraph of this page, replace the phrase “would be gated” with the phrase “is gated.”

**9. TABLE 3: Page 27, second row, second column**

Replace the second sentence with the following sentence:

“Construction would minimize disruption of visitor access and use of the Pine Island developed area by working methodically from one end of the project area to the other.”

**10. TABLE 3: Page 28, second column, first paragraph**

Replace this paragraph with the following text:

“Locating the two new percolation ponds as far from surface waters as possible and the installation of monitoring wells at strategic locations would reduce potential impacts to Outstanding Florida Waters.”

**11. FLOODPLAINS AND WETLANDS: Page 57, Impacts of Alternative B:**

Insert the following as the last sentence of the second paragraph in the section headed “Wetlands”:

“The park would install monitoring wells at strategic locations to ensure the protection of Outstanding Florida Waters.”

**12. VEGETATION: Page 62, Impacts of Alternative A: No Action/Continue Current Management.**

Insert the following text at the end of the last paragraph in this section (prior to “Cumulative Effects”):

“Dade County slash pines and Dade County slash pine habitat are adapted to very low nutrient levels. Septic tank drainfields, as well as the possibility of septic system leakage, introduce nutrients to the relatively small project area. Therefore, Alternative A would have a negligible to minor adverse impact on Dade County slash pines and Dade County slash pine habitat.”

**13. VEGETATION: Page 63, Impacts of Alternative B: The Preferred Alternative**

Insert the following text at the end of the last paragraph in this section (prior to “Cumulative Effects”):

“Because the wastewater treatment plant would treat nutrients, the preferred alternative would result in a reduction of nitrogen and phosphorous introduced into the project area. Additionally, the infiltration beds (the source of effluent discharge) would be buffered from the pinelands by wetland habitat. Therefore, Alternative B would have a negligible beneficial impact on Dade County slash pines and Dade County slash pine habitat.”



## **RESPONSE TO COMMENTS**

### **1) Comments from the Florida Department of Health (FDOH):**

“The developer is reminded unless the existing tanks are to be incorporated into the design of the new sewage collection system, the existing onsite systems are required to be abandoned in accordance with applicable rules. System abandonment requires permit, inspection and approval from the county health department.”

#### **NPS response to FDOH:**

The proposed wastewater treatment system will be designed, constructed, operated and maintained to meet Florida Administrative Code, and Chapter 24, Environmental Protection of the Code of Metropolitan Dade County standards. Existing onsite systems will be abandoned in accordance with these standards. The issue of permitting authority for discharges to groundwater is under review within the U.S. Department of Interior.

### **2) Comments from the South Florida Water Management District (SFWMD):**

“Additional details should be provided on: (1) The backup generator, including type of fuel, if a fuel tank will be located onsite, design of the tank (above vs. below ground), and plans to mitigate any fuel spills; and (2) The treatment train to be used for the membrane biological reactor (MBR) treatment system, including potential steps in the treatment train, onsite chemical storage (types and quantities), and disposal of wastes other than the discharge water and sludge.”

#### **NPS response to SFWMD:**

The emergency power system for the Pine Island and Headquarters WWTP will consist of an onsite diesel engine driven generator. Diesel fuel will be stored in an adjacent aboveground “Convault”-style fuel storage tank. In the event of a fuel spill, the Park follows an established Emergency Response Plan. Typically, the services of an environmental cleanup company are acquired for the clean-up of a spill site in accordance with federal, state and local regulations.

The membrane bioreactor (MBR) treatment system will consist of a single tank partitioned to provide anoxic/aerobic biological treatment for carbonaceous biochemical oxygen demand (BOD) reduction as well as nitrification/denitrification and an aerated MBR section for liquid/solids separation. Onsite chemical storage will be provided for sodium hydroxide, ferric chloride, sodium hypochlorite and sodium acetate. Approximately 100 to 150 gallons of each chemical will be stored onsite at any given time. The actual volume will depend upon the chemical supplier's standard storage container sizes (totes). The only disposal of wastes other than the discharge of treated wastewater effluent and biological waste sludge will be for wastewater screenings removed prior to biological treatment. Chemical waste disposal is generally managed through the services of a hazardous materials recovery company tasked with handling and disposal in accordance with federal, state and local regulations.

### **3) Comments from the Florida Department of Environmental Protection (FDEP):**

“The Park is aware that they will need a Waste Water Permit from the Department. Our Wastewater section has been working with them and their consultant on permit issues as the project moves along.”

## **NPS response to FDEP**

The issue of permitting authority for discharges to groundwater is under review within the U.S. Department of Interior.

## **4) Comments from the Miami-Dade County Department of Environmental Regulation and Management (DERM)**

A representative from Miami-Dade County Department of Environmental Regulation and Management (DERM) provided comments at the public meeting on EA. In summary, the comments are:

1) The plant requires a DERM permit, including Miami-Dade County Environmental Quality Control Board approval. 2) Treatment for fecal coliforms must meet county standards. 3) Setback distances between potable water wells and wastewater system components must meet county standards.

## **NPS response to DERM**

The proposed treatment plant will be designed, constructed, operated and maintained to meet Florida Administrative Code, and Chapter 24, Environmental Protection of the Code of Metropolitan Dade County standards. Treatment of fecal coliforms and setback distances are addressed in these standards. The issue of permitting authority for discharges to groundwater is under review within the U.S. Department of Interior.

## **5) Comments from the South Florida Regional Planning Council (SFRPC):**

“The goals and policies of the SRPP [Strategic Regional Policy Plan] for South Florida, in particular those indicated below, should be considered when making decisions regarding this project.

Strategic Regional Goal 2.3. Enhance the economic competitiveness of the region and ensure the adequacy of its public facilities and services by eliminating the existing backlog, meeting the need for growth in a timely manner, improving the quality of services provided and pursuing cost-effectiveness and equitability in their production, delivery and financing.

Regional Policies 2.3.11. Give priority to the construction, maintenance or reconstruction of public facilities needed to serve existing development most effectively. Local governments should provide centralized sewer service in areas where existing septic tanks are a problem and adopt and implement stormwater level of service standards consistent with those recommended by the South Florida Water Management District.

Strategic Regional Goal 3.9.1. Restore and protect the ecological values and functions of the Everglades System.

Regional Policies 3.9.5. Conserve water entering the Everglades system and increase the self sufficiency of urban and agricultural water supplies by:

- a) creating water storage areas near or within urban areas;
- b) promoting increased efficiency of water use in agriculture, business uses and residential use; and
- c) promoting the development of alternative water supply sources.

Restore water quality throughout the system by:

- a) requiring stormwater treatment and storage areas for existing and newly developed areas and agricultural lands; and
- b) protecting existing wetlands, native uplands and identified aquifer recharge areas.

Strategic Regional Goal 3.8. Enhance and preserve natural system values of South Florida's shorelines, estuaries, benthic communities, fisheries, and associated habitats, including but not limited to, Florida Bay, Biscayne Bay and the coral reef tract.

Regional Policies 3.8.3. As a result of proposed project reviews, include conditions that result in a project that enhances and preserves marine and estuarine water quality by:

- a) improving the timing and quality of freshwater inflows;
- b) reducing turbidity, nutrient loading and bacterial loading from wastewater facilities, vessels;
- c) the number of improperly maintained stormwater systems; and
- d) requiring port facilities and marinas to implement hazardous materials spills plans.

#### **NPS response to the SFRPC:**

Re: Strategic Regional Goal 2.3. The preferred alternative will improve the quality of wastewater services needed to serve existing development. Providing centralized wastewater treatment at the Pine Island developed area is consistent with Regional Policy 2.3.13.

Re: Strategic Regional Goal 3.9.1. The preferred alternative will improve the quality of wastewater effluent by reducing the quantity of nutrients. This reduction of nitrogen and phosphorous will result in beneficial impacts to the Everglades system, directly addressing Regional Policy 3.9.6.b. The preferred alternative will result in a more efficient wastewater treatment system, which is consistent with Regional Policy 3.9.5.b.

Re: Strategic Regional Goal 3.8. The preferred alternative is consistent with this Strategic Regional Goal. See comments from and response to Reef Relief, below.

#### **6) Comments from Reef Relief:**

"We thank you for taking action to improve sewage treatment within Everglades National Park. The park is home to abundant coral reefs, which should be protected to the highest degree possible.

Coral reefs can tolerate only minute amounts of nutrients such as nitrates and phosphates, which are abundant in wastewater. Water quality in South Florida and especially in the Everglades, has been declining for the past 15 years due to a combination of factors. However, inadequately treated wastewater has been one of the more solvable contributors of nutrients. An over-abundance of nutrients has led to the proliferation of algal blooms, coral diseases, and loss of fish habitat at many coral reefs in South Florida, including those in Everglades National Park. The technology exists to treat wastewater to very high standards that will remove these harmful nutrients.

It behooves the National Park system to install a state of the art wastewater treatment system in the Pine Island and Headquarters area to protect the surrounding coral reefs. We strongly recommend that the wastewater be treated to advanced, nutrient-removal standards, known as 5:5:3:1. This is higher than some state standards for small plants, but it is well worth the additional cost. If the plant is not producing more than 100,000 gallons of waste per day, then the state will legally allow treatment to 10:10:5:1, a much higher threshold of nutrients. However, we urge you to go to the lower standard and treat the waste to the standard of 5:5:3:1. This will insure that the wastewater discharges into the park will not further degrade water quality in an area so important and so threatened.

#### **NPS response to Reef Relief:**

The 5:5:3:1 standard applies to treatment plants with flows greater than 100,000 gallons per day (gpd). The Pine Island wastewater treatment plant is being designed for an average flow of only 25,000 gpd. If the plant were in Monroe County (which is contiguous with Florida Bay), the applicable standard would be 10:10:10:1. Because of our interest in protecting the environment, we are further reducing that standard for this Dade County project to 10:10:10:0.1 for plant effluent. This treatment will therefore remove at least ten times the amount of phosphorus that is currently required by state standards. We are using this more protective approach because fresh water is much more sensitive to phosphorus than marine water. To ensure protection of Florida Outstanding Waters within the park, the NPS will install monitoring wells that intercept the groundwater downgradient from the point of discharge, before it reaches wetlands, to ensure that all pertinent water quality standards are met, or exceeded, including a total phosphorus limit of 0.01 mg/L. Protection of adjacent wetlands will also ensure protection of downstream marine resources including coral reefs. Additionally, the possibility of phosphorus-enriched groundwater from Pine Island reaching Florida Bay and adjacent reef communities is extremely low, given the relatively low discharge and the ten mile distance between the treatment facility and Florida Bay.